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LONG-TERM ECONOMIC OUTLOOK

ANNUAL REVIEW

October 1992

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This Review replaces the November 1991 Long-Term Economic Outlook. The forecasts contained in it have been approved by the Vice-President, Environment and Corporate Planning. They have the status of Corporate Predictions as defined under Section 7 of the OOOH Manual.

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File No.: 706.01A

ontario hydro

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Note: Recipients who have an Economic Outlook binder should place this report under the tab titled "Economic Outlook: Long Term".

MEMORANDUM

ALL USERS

October 1992

File No.: 706.01A

LONG-TERM ECONOMIC OUTLOOK - ANNUAL REVIEW

OVERVIEW

This forecast updates the Long-Term Economic Outlook issued in September of 1991. It incorporates important changes in short and long term economic variables. The level of Ontario GDP in the revised forecast is 1.7% lower by the year 2015 than was predicted last year. The difference relates primarily to downward revisions in historical data and to the much weaker economic performance through 1991 and 1992 than was previously reported. These short term negatives are counterbalanced to some extent in the longer term by a higher population forecast. Annual growth in Ontario GDP is still expected to moderate gradually, from 3.8% in the 1992 to 1996 period to an average rate of only 2.5% per year by the end of the forecast horizon. This is due to gradually easing growth in the labour force.

Another important change to this year's forecast is a lower rate of inflation than was outlined last year. Through the short term, at least, Canadian price increases are noticeably lower than in the United States, thus raising the competitiveness of our products on international markets. This results in a higher valued Canadian dollar than was predicted last year. Beyond 1996, however, Canadian and US inflation rates are expected to be similar, thus causing the dollar to stabilize at 83.5 cents US for the remainder of the forecast period. Nominal interest rates have been lowered in this forecast to reflect the more modest inflation figures.

Constitutional issues are of significantly less concern this year than they were a year ago. However, the signing of the North American Free Trade Agreement is a new consideration. Based on our thorough analysis of the Canada US Free Trade Agreement, it is estimated that the impacts of the new agreement will be small but positive.

Radically stringent environmental policies (especially those aimed at preventing the greenhouse effect) could seriously dampen economic growth. At the present time, we view adoption of such restrictive policies as unlikely in Ontario. This is the same assumption as in last year's forecast.

The industrial competitiveness of the Ontario economy has improved markedly over the past year due to the decline in the value of the Canadian dollar, significantly lower inflation relative to the US, and substantial productivity gains. This was an issue of much uncertainty in last year's long term forecast. It appears that this was more a short term cyclical phenomenon associated with the recent recession rather than a long term shift.

Recent analysis also suggests that the threat of deindustrialization has also faded somewhat based on the marked gains in productivity and competitiveness achieved in the past year. Manufacturing industries have already started to recoup lost ground. Exports have increased significantly and investment and business confidence suggest that businesses in this province are now laying foundations which will help them bounce back once the recovery gathers momentum.

The changes in the key indicators are summarized in the following table:

Changes from the September 1991 Outlook***

	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
Ontario Real GDP Growth*	-0.5	+0.1	+0.2	+0.1	+0.1
CPI Inflation Rate	-1.3	-1.5	-1.5	-1.0	-1.0
Government Bond Rate (long-term)	-1.0	-1.6	-1.6	-0.9	-1.5
Canadian Dollar**	-1.2	+3.5	+3.5	+4.5	+5.5
Real World Oil Price*	+1.1	+0.1	+0.2	+0.7	0.0
Real Natural Gas Price*	-3.5	-0.8	-2.7	+1.4	+0.5

* Difference in growth rate (percentage points) from previous forecast.

** Change in US cents relative to previous forecast.

*** Changes in energy prices are from September 1991 Outlook.

"Real" values are computed by subtracting the inflation rate.

If you have any questions concerning the Economic Outlook, please feel free to call me (6375) or Mahmoud Elkhafif (6391). Readers who would like more information on the reasoning behind the forecasts may obtain technical background papers on the Ontario demographic and sectoral forecasts by calling Cecilia De Borja (6394). A more detailed explanation of the long-term outlook is also available in the Report entitled "Background Report on Forecast Details".

Mitchell P. Rothman
Chief Economist
Economics and Forecasts Division

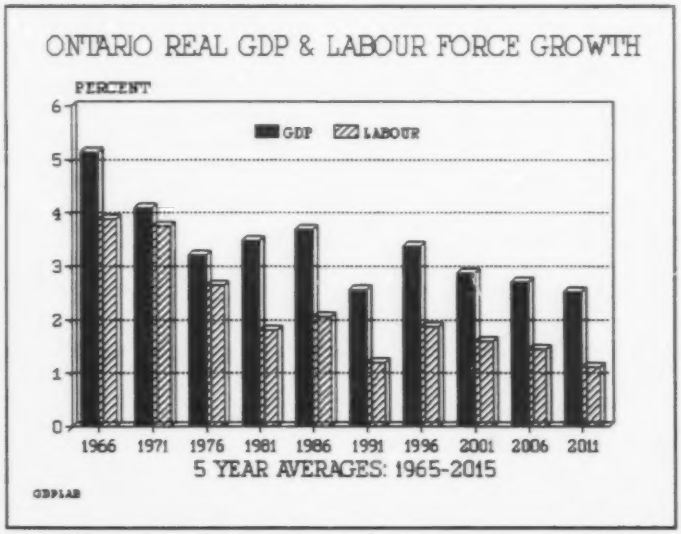
October 1992

1. Sources of Ontario Economic Growth

	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
Employment growth*	1.6	2.5	0.7	2.1	1.7	1.4	1.1
Real output per worker*	1.9	1.2	1.8	1.3	1.3	1.3	1.4
Total output growth (GDP)*	3.6	3.8	2.5	3.4	3.0	2.7	2.5

* Average annual percent change.

Growth in GDP (the total output of all goods and services produced) occurs because of growth in the supply of factors of production such as the labour force and the stock of physical capital and because of improvements in productivity. In the short term, productivity can be adversely affected by supply shocks and monetary disturbances, as in the 1970s. During the 1970s productivity growth was near zero, mainly due to oil price shocks and high inflation and unemployment. More normal productivity growth resumed in the 1980s. In the absence of major supply shocks, improvements in productivity are likely to average about 1.8 percent per year, in the 1991-1995 period, but then to ease lower to 1.3% from 1996 to 2010. In the 2011-15 period, there will be a slight increase in labour productivity growth as the slower growth of the work force promotes more advanced, automated production techniques. As a result of moderating labour force growth, aggregate output in the economy is forecast to grow slowly compared to historical rates.



The main factor influencing the expected trend of real GDP growth is slowing population and labour force growth. The fall in the fertility rate to below replacement levels during the past twenty years means that the increase in the work force in the next twenty years will be relatively modest. The fertility rate fell dramatically, from an average of 3.0 children per woman in the 1960s to an average of about 1.7 children per woman during her lifetime in the 1980s, well below its replacement level rate of 2.1. The sociological factors which have contributed to lower fertility rates are expected to maintain rates below replacement level in the future. Even if an unforeseen large increase in the birth rate suddenly occurred, it would have no direct impact on the size of the work force for about twenty years.

In addition to the natural increase in the size of the working age population, the growth in the total labour force is influenced by the number of immigrants into Ontario and by the proportion of the population which chooses to work. Both of these factors are likely to work in the direction of increased growth, but not enough to offset the overall declining trend. A detailed description of our 1992 demographic forecasts may be obtained upon request.

2. Sectoral Distribution of Output[1]

	1970	1980	1985	1990	1995	2000	2005	2010	2015
Primary Sector*	5.4	3.7	3.2	3.1	2.8	2.7	2.5	2.3	2.2
Manufacturing Sector*	27.3	24.7	25.9	23.2	24.0	24.5	24.4	24.1	23.9
Service Sector*	52.1	56.7	56.8	59.8	59.3	59.5	60.1	60.8	61.4

* Percentage share of provincial GDP (eg. the importance of these sectors as direct sources of income for Ontarians). Do not sum to 100 because construction, utilities and public administration are excluded.

The composition of GDP growth is important for predicting the growth in demand for electricity, because some industries and sectors are considerably more electricity-intensive than others (ie., electricity represents a relatively larger share of the total cost of that industry's production).

The **primary sector** has continuously been losing importance in the economy in the past thirty years and will continue to do so throughout the forecast period. Growth in natural resources exploitation (mainly minerals, timber) is expected to be minimal over the long term mainly because of tightening reserves (stocks). Environmental regulations will put additional restrictions on resource availability. Consequently, the cost (economic and social) of extracting natural resources is expected to increase. Ontario resource companies will find it more difficult to compete on world markets, especially as former communist countries and developing countries gain strength.

A number of factors will combine to stimulate production in the **manufacturing sector** until early in the next decade. CPI inflation is forecast to be contained at or below 3.5 percent. This will help keep wages and other costs down. Investments will intensify and concentrate on increasing efficiency and productivity. Productivity has already improved noticeably in the past year and a half and further strong gains are likely in the next few years. Furthermore, the Canadian dollar is expected to stick much closer to its underlying value (in US dollars) than it did in the latter years of the 1980s. This will also help to boost overall provincial competitiveness during that period. Ontario industries are clearly restructuring in preparation for the elimination of trade barriers under the Free Trade

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[1] Data Revisions: Mining and service sector estimates for GDP have been revised. This results in a slightly different historical picture, which has to be taken into account in this forecast. The primary and manufacturing sectors now appear to have a less significant weight in the economy than previously believed. The service sector has a larger share of total GDP. Comparisons to past forecasts should therefore be made with caution.

Agreement with the United States (and likely Mexico as well). Enhanced competitiveness in this fully integrated North American market will substantially benefit exporters. As a result, exports are forecast to be a major source of growth over the next ten years or so.

As the economy recovers, the manufacturing sector will recoup the losses suffered during the 1990-91 recession and its share of total GDP will increase. The sector's importance is expected to peak in the period from 2000 to 2005.

In the longer term, most of the restructuring in the economy will have taken place. The province will be an integral part of a North American market. Growth in manufacturing exports will gradually slow down. And with diminishing growth in population and the resulting moderation in domestic market growth, the manufacturing sector will grow more slowly than the rest of the economy, losing importance in the process.

The **service sector**, once manufacturing bounces back from its 1991 low (in terms of share of GDP), will continue adding to its weight in the economy, although at a slower pace than it did in the past. The major new developments in this sector and the introduction of new services have, for the most part, taken place (eg. education, health, business services). Many segments will have already matured over the next 25 years and are expected to see a slowdown in their rate of expansion.

An aging population will contribute to a strong demand for services (health care requirements, for example), so will a vigorous manufacturing sector. On the other hand, less rapid growth in real disposable income and a peaking female participation rate early in the next decade are factors that will put a damper on the rate of increase in the service sector over the long term.

3. Inflation - Consumer Price Index*

1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
7.4%	4.5%	2.9%	3.5%	3.5%	4.0%	4.0%

* Average annual percent change for Ontario

Inflation is the most uncertain variable in a long-term forecast because it is determined not by fundamental technological factors but by discretionary government monetary policy. These monetary policies can change substantially with changes in government. Emphasizing this uncertainty is the most useful function that a forecaster can provide, to alert managers that they should not make plans whose success is highly dependent on the inflation rate remaining unchanged. Because long-term inflation is so hard to predict, users of the forecast should be aware of the danger in making firm-price long-term commitments based on these forecast values.

The designers of Canadian monetary policy at the Bank of Canada have established an official target of reducing CPI inflation to 2 percent by the end of 1995, with the possibility of reducing it all the way to zero thereafter. One cannot deny the very firm stance taken against inflation in the 1989-1990

period. However, it seems that there are several obstacles in the way of their achieving anything close to the 2 percent target in 1995.

The first problem is that the current good performance of inflation, being kept to just under 2 percent, is due to the recession from which the economy is just emerging. Recessions usually repress inflation for a year or two after they end, but as economic growth picks up, inflation tends to rise again. In addition, the somewhat relaxed monetary policies pursued both in Canada and the U.S. are likely to put upward pressure on Canadian inflation in the next two years. There is also the inflationary impact of the drop of the Canadian dollar from an average of $0.87 U.S. in 1991 to an expected average of $0.83 U.S. in 1992.

The continuation of substantial federal government deficits, above the government targets, adds to the risk of loose monetary policy at some point in the future. Our medium- and long-term forecast of 3.5 to 4 percent inflation is a middle-ground estimate, balancing the risks on the low and high side, rather than a specific prediction of a steady path of 4 percent inflation.

4. Canadian Interest Rates (%)

	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
30-year Bond Rate	13.0	10.1	8.7	8.3	7.9	8.3	8.0
Real Bond Rate*	7.4	6.3	5.0	4.5	4.0	4.3	4.0
90-day Treasury Bill Rate	12.2	10.3	6.9	7.3	6.3	6.5	6.8
Real Treasury Bill Rate	4.8	5.8	3.7	3.8	2.8	2.5	2.8

* This reflects the expected real rate of return on bonds over a 30 year life span. The real rate is calculated by subtracting the expected (forecast) average of the next 30 years CPI inflation from the nominal bond rate.

Real rates of interest were forecast to be abnormally high throughout the 1980's because of a tightening of monetary policy (in reaction to double digit inflation), falling inflation and an upward trend in government budget deficits. Those forecasts have been validated by events. The forecast for real interest rates for long term bonds indicates that some reduction is in store over the next 10 to 15 years for a variety of reasons:

- real economic growth (a proxy for borrowing demands) is slowing over the long term, as a result of demographic changes.

- inflation is under better control as the Bank of Canada has become serious in recent years about limiting money supply growth. If inflation does not accelerate much as a result, then the risk premium presently in the market will decline along with inflationary expectations.

- government deficits at the Federal level, at least in Canada, appear to be slowly coming under control (both the inflation-adjusted and cyclically-adjusted deficits as well as the deficit to

GDP ratio are declining). If progress continues along these lines, then, inflationary expectations, which influence bond yields, will continue to decline.

- as the baby-boomers age and enter their mid-40's they will begin to save more; and as they continue to age, a greater proportion of those savings will go towards annuities and bonds if past trends hold. The increased demand for bonds is expected to raise their price thereby lowering yields.

One offsetting factor to the above favourable trends concerns the demand for capital in Germany and other parts of the former Soviet Union's sphere of influence as well as the growing needs of other developing economies such as China and Latin America. Because world capital markets are becoming increasingly integrated, investment needs from these areas will prevent North American bond yields from declining to the extent that they would otherwise. After 15 years or so, this influence will likely diminish as many of these countries will have developed more sophisticated economies, financial systems and stock markets which will better channel and distribute their domestic savings and make them less reliant on overseas capital and entrepreneurs. Japan, Taiwan, Hong Kong and South Korea have developed in this manner.

From about the 2006-10 period and beyond, two new factors are expected to begin to influence bond yields, both real and nominal, first pushing them up and then causing them to stabilize: monetary policy is apt to be slowly loosened by governments gradually giving in to pressure groups demanding more spending on their favourite projects. These actions will eventually raise inflation and inflationary expectations to a limited degree. Also, once the baby boomers start to retire they will begin to spend their savings. The reduced demand for bonds will lower their prices and push up yields. This effect is not expected to be dramatic as slower population growth is likely to mean a reduced demand for financing, which works in the opposite direction. While some capital will flow out of the country in search of high returns abroad (preventing domestic yields from dropping dramatically), foreign economies are apt to be more mature and well-developed by then, with lower returns that will make them less enticing to capital from North America. Once inflation is seen to stabilize, the risk (of higher inflation) premium will diminish, allowing real long-term bond rates to fall slightly at the end of the forecast period.

Real short-term interest rates, after a probable cyclical rebound in 1996-2000, are apt to be on a declining trend for some years thereafter based on the assumptions of a weaker demand for capital, higher savings rates and a gradually loosening of monetary policy. Unless monetary policy is loosened, it will be difficult for an upward trend in inflation and higher inflation rates to persist. At the end of the forecast period, real treasury bill rates rise somewhat to prevent inflation from gradually accelerating. The tightening of monetary policy soothes fears in the bond markets, allowing a slight decline in real bond yields.

5. Canadian Dollar Exchange Rate*

1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
90.8	79.2	79.8	83.1	83.5	83.5	83.5	83.5

* Average value in US cents.

The main determinant of the long-term exchange rate is the spread between Canadian and U.S. inflation rates. This forecasts assumes that the Canada-U.S. Free Trade Agreement and the North American Free Trade Agreement will increase the alignment between Canadian and U.S. monetary policies, and consequently eliminate the historical tendency for Canadian inflation to exceed U.S. inflation. In the past year the Canadian dollar dropped from more than $0.89 U.S. to about $0.80 U.S.. This is below our estimated long-term value. The long-run forecast is for a value for the Canadian dollar between $0.83 U.S. and $0.84 U.S., on the assumption of equal inflation rates (measured by the Industrial Product Price Index) in Canada and the United States. However, any small difference in Canadian versus U.S. inflation, over a sustained period, could lead to significant changes in the exchange rate.

6. Environmental Policies

Concern over environmental degradation has increased again in the past few years, and government regulations to reduce emissions will impose greater costs on businesses over the coming decade. Measures called for under current and proposed legislation would divert a significant amount of capital investment to environmental purposes. Other things equal, this would improve the quality of life (not measured by GDP) but reduce measured real GDP. Our preliminary analysis suggests that environmental policies historically accounted for a 0.1% per annum reduction in real GDP growth.

Future new environmental policies might be devised to deal with the greenhouse effect. Depending on how these policies are implemented, they could substantially reduce potential real GDP growth. For a variety of reasons, this outlook does not include any reduction in GDP growth due to greenhouse policies, such as carbon taxes, designed to reduce CO_2 emissions dramatically. First, it would be prohibitively costly for any one jurisdiction (such as Ontario or Canada) to impose anti-greenhouse policies until there is widespread international agreement on these policies. This will be very difficult to achieve. Secondly, there is a very high degree of uncertainty regarding the economic and demographic implications of global warming in North America.

7. Energy Prices*

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2025	2016-2025
Canadian Crude Oil	-6.7	0.7	2.8	1.3	1.3	0.7	0.0
Natural Gas	-13.3	0.0	3.4	1.3	4.2	1.5	0.0

* Annual average percent change in price (with CPI inflation removed).

Since our last long-term forecast, prepared in September 1991, the world oil market has been fluctuating in response to changes in market fundamentals and various speculations, most of it related to the supply side of the market. Since the end of the Gulf War in February 1991, the world oil market has remained almost uneventful and prices for major crude oils have been hovering within a $4 US a barrel range. In 1991, the average price for West Texas Intermediate crude oil was about $22 US a barrel.

The return of Kuwaiti and Iraqi oil production onto the world oil market is expected to be gradual and this will help OPEC to adjust its production quotas to compensate for these countries' production. This will prevent substantial price reduction, since the oil market will remain in an oversupply situation after Iraqi/Kuwaiti oil is back on the market. As a result, the world oil price is expected to be $20.70 US per barrel by 1995, not significantly higher than today's values. This is about $2 US below last year's forecast.

Our medium and long-term forecast includes a reduction in the medium- and long-term price outlook. International crude oil (West Texas Intermediate) in 2015 is now projected to be US$28.40 a barrel, in constant 1991 dollars, a US$1.40 reduction from last year's forecast. World oil supplies are expected to be more abundant, improved production technology will enable production at lower cost and demand for oil products will be restrained by conservation measures.

Our long-term forecast still projects oil prices to grow in real terms. Stronger upward pressure on world oil prices is expected to resume around the year 2000. World demand for oil is likely to be stronger than in the 1980's, but availability of non-OPEC supplies in the next decade could be constrained as a result of the adverse investment climate of the late 1980's and early 1990's. Slow real crude oil price increases in the early 1990's will further diminish the incentive for non-OPEC exploration and development while leading to a greater reliance on OPEC oil. OPEC production capacity is expected to expand more slowly than output, so the rise in OPEC capacity utilization will create upward pressure on prices. It is a vital interest of major crude oil producers with large reserves, notably Saudi Arabia, that oil prices be more stable than in the past. More moderate escalation will stimulate oil consumption while at the same time restraining non-OPEC capacity expansion. We expect that a combination of market forces and decisions made by producers and consumers will keep prices in the mid $20 US range per barrel on average in the long run. In this forecast, the international crude oil (West Texas Intermediate) in 2015 is now projected to be US$28.40 a barrel, in constant 1991 dollars, a US$1.40 reduction from the last year's forecast.

The domestic oil market is expected to remain deregulated. Canadian crude oil prices are projected to move with the trend in international oil prices, subject to exchange rate and transportation cost adjustments. In 1992, the Ontario Refiners' Acquisition Cost (ORAC) is projected to average around $23 per barrel, escalating to about $26.60(in 1991$) by 2000 and to about $32 by 2015.

The Canadian natural gas market has remained very weak during the last few years. The deregulation of natural gas markets at the time of substantial gas surpluses has created a very competitive market and domestic natural gas prices have declined to levels not seen in ten years.

Over the last few years, our short-term natural gas price projections have been adjusted downward in response to recent developments in the gas market. Our long-term forecast remained relatively unchanged awaiting a more fundamental assessment of the long term implications of gas industry deregulation, new estimates of gas availability, and re-estimates of long-term replacement costs of gas. Over the last year, several studies concluded that many factors would result in lower gas prices than previously expected. The key factors are: regulatory changes in the gas industry, technology improvements in the exploration and production of gas, downward revision of gas replacement costs, and higher potential for unconventional resources supported by various tax credits. In addition to changes in gas market fundamentals, several other factors such as lower crude oil and petroleum product prices, lower inflation, and higher Canadian dollar projections have contributed to a substantial reduction in the natural gas price forecast.

In this forecast, the average Toronto City Gate price (TCG) in 2015 is projected to be $4.39/MMBtu, in constant 1991 dollars, a $1.39/MMBtu (or 24 per cent) reduction from last year's forecast. However, our reference case forecast still calls for real price increases, particularly around the year 2005, due to stronger demand, a decline in the reserves-to-production ratio, a tighter U.S. market, the increasing cost of marginal supplies and the direct competition with low sulphur residual fuel oil.

1.0 FORECAST TABLES

1.1 ONTARIO

	Actual 1976-1980	1981-1985	1986-1990	Forecast 1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
Annual Average Percentage Change:								
Real Gross Domestic Product	3.2	3.6	3.3	2.5	3.4	3.0	2.7	2.5
Consumer Price Index (Ont)	N/A	7.6	5.0	2.9	3.5	3.5	4.0	4.0
Average Hourly Earnings:								
Manufacturing	9.5	8.1	4.8	3.7	4.8	4.8	5.3	5.4
Construction	9.6	6.1	5.5	2.8	4.8	4.8	5.3	5.4
Population	1.0	1.0	1.6	1.7	1.4	1.2	1.0	1.0
Labour Force	2.6	1.8	2.1	1.2	1.9	1.6	1.4	1.1
Employment	2.5	1.6	2.5	0.7	2.1	1.7	1.4	1.1
Labour Productivity	0.7	1.9	0.8	1.8	1.3	1.3	1.3	1.4
Annual Average Rates:								
Unemployment Rate	6.7	8.7	5.9	9.6	7.7	7.4	7.4	7.1

1.2 CANADA

	Actual 1976-1980	1981-1985	1986-1990	Forecast 1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
Economic Growth and Inflation: (Annual Avg Percentage Change)								
Real Gross Domestic Product	4.0	3.0	2.8	2.3	3.4	3.0	2.7	2.4
GDP Deflator	8.3	6.1	4.0	2.2	3.5	3.5	4.0	4.0
Consumer Price Index	8.7	7.4	4.5	3.2	3.5	3.5	4.0	4.0
Industrial Product Price (Mfg)	10.0	5.4	2.2	2.0	3.5	3.5	4.0	4.0
Average Hourly Earnings (Mfg)	10.1	8.1	4.5	3.5	4.8	4.8	5.3	5.4
Real Average Hourly Earnings	1.4	0.7	0.0	0.3	1.3	1.3	1.3	1.4
Interest Rates (Annual Avg Rate):								
Real Treasury Bill Rate*	1.3	4.8	5.8	3.7	3.8	2.8	2.5	2.8
Treasury Bill Rate	9.9	12.2	10.3	6.9	7.3	6.3	6.5	6.8
Bank Prime	11.1	13.8	11.6	8.0	8.4	8.4	7.6	7.9
Government of Canada Bonds:								
5 years	9.6	12.5	9.9	8.0	7.9	7.6	8.0	7.7
30 years	10.0	13.0	10.1	8.7	8.3	7.9	8.3	8.0
Canadian Dollar in US Cents	90.8	79.2	79.8	83.1	83.5	83.5	83.5	83.5
Net Capital Inflows (% of GDP)	2.6	1.4	2.4	2.5	2.5	1.5	1.0	1.0

* The nominal Treasury Bill Rate minus the rate of CPI increase.

1.3 UNITED STATES

	Actual 1976-1980	1981-1985	1986-1990	<----Forecast----> 1991-1995	1996-2000	2001-2005	2006-2010	2011-2015
Annual Average								
Percentage Change*:								
Real Gross National Product	3.4	2.6	2.6	1.7	2.4	2.2	2.1	2.0
Consumer Prices	8.9	5.5	4.0	3.6	3.5	3.5	4.0	4.0
Compensation per Hour	9.0	5.8	4.9	3.7	5.3	5.5	5.5	5.5
Average Annual Rate:								
Treasury Bill Rate	7.8	10.0	6.8	5.1	5.4	4.8	5.3	5.5
Real Treasury Bill Rate	-1.1	4.5	2.8	1.5	1.9	1.3	1.3	1.5
Government Bond Yields:								
5 year maturity	8.6	11.5	7.7	7.0	7.1	6.6	7.0	6.8
30 year maturity	8.9	11.8	8.4	8.0	7.5	7.0	7.4	7.2
Canada-U.S. Interest Differentials:								
Treasury Bills	2.1	2.2	3.5	1.8	1.9	1.5	1.2	1.3
Long-Term Bond Yields	1.1	1.2	1.7	0.7	0.8	0.9	0.9	0.8

* These forecasts are mainly derived from Data Resources Inc.

1.4 ONTARIO INDUSTRIAL STRUCTURE

Percentage Share of Gross Domestic Product

	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Primary	5.4	4.1	3.7	3.2	3.1	2.8	2.7	2.5	2.3	2.2
Agriculture & Rel. Serv. (01,02)	2.4	2.3	1.9	1.7	1.5	1.3	1.2	1.2	1.1	1.0
Fishing, Hunting & Trap. (03)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Logging & Forestry & F. Serv.(04, 05)	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Mining & Min. Serv. (06-09)	2.5	1.5	1.4	1.1	1.3	1.2	1.1	1.0	1.0	0.9
Manufacturing	27.3	26.4	24.7	25.9	23.2	24.0	24.5	24.4	24.1	23.9
Food prod. (10)	2.7	2.5	2.4	2.5	2.0	1.9	1.8	1.7	1.6	1.5
Beverage (11)	1.1	0.9	0.8	0.7	0.5	0.5	0.5	0.4	0.4	0.4
Tobacco prod. (12)	0.4	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Rubber prod. (15)	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
Plastic prod. (16)	0.3	0.3	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.8
Leather, Text. & Clothing (17-91, 24)	1.2	1.1	1.2	1.2	0.9	0.8	0.7	0.7	0.6	0.6
Wood prod. (25)	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Furniture & Fixture (26)	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3
Pulp, Paper & All. Prod. (27)	2.0	1.4	1.5	1.3	1.1	1.2	1.1	1.1	1.0	1.0
Printing & Publishing (28)	1.4	1.4	1.6	1.6	1.4	1.4	1.5	1.5	1.5	1.5
Primary Metal prod. (29)	3.6	2.9	2.3	2.0	1.7	1.6	1.6	1.5	1.4	1.3
Fabricated Metal prod. (30)	2.8	2.6	2.3	2.1	1.8	1.7	1.7	1.7	1.6	1.6
Machinery (31)	1.6	1.6	1.7	1.2	1.0	0.9	0.9	1.0	1.0	1.0
Transportation Equipment (32)	3.2	4.5	3.0	5.0	5.1	6.2	6.6	6.9	7.1	7.3
Electrical & Electron. prod (33)	1.3	1.4	1.7	2.4	2.3	2.6	2.9	3.0	3.0	3.1
Non-Metal. Mineral prod. (35)	1.0	1.0	0.8	0.8	0.8	0.6	0.6	0.6	0.5	0.5
Ref. Petroleum & Coal prod. (36)	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Chemical & Chem. prod. (37)	1.9	1.7	2.0	2.0	1.8	1.8	1.8	1.7	1.7	1.7
Other Manufacturing (39 +)	0.8	1.0	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.7
Construction (40-44)	6.0	5.7	4.9	5.1	5.5	5.9	5.8	5.9	5.9	5.9
Utilities (49)	2.8	2.9	3.1	2.9	2.7	2.7	2.6	2.6	2.5	2.4
Services	52.1	54.4	56.7	56.8	59.8	59.3	59.5	60.1	60.8	61.4
Transportation & Storage (45-47)	3.9	3.8	3.8	3.7	3.8	3.7	3.8	3.9	3.9	4.0
Communication (48)	1.6	2.1	2.9	2.9	3.8	4.1	4.4	4.6	4.9	5.0
Wholesale Trade (50-59)	4.7	4.9	5.0	5.5	5.4	5.3	5.3	5.3	5.3	5.4
Retail Trade (60-69)	6.8	6.9	6.2	6.0	5.9	5.8	5.8	5.8	5.8	5.9
Finance, Insur. & Real Estate (70-76)	14.2	14.8	16.5	16.7	18.1	18.8	19.0	19.3	19.5	19.5
Community, Business & Personal Serv.	20.9	21.9	22.3	22.0	22.9	21.6	21.2	21.2	21.4	21.5
Business service (77)	1.7	2.6	3.4	4.3	5.3	5.3	5.5	5.9	6.2	6.3
Educational Service (85)	7.7	7.2	6.1	5.3	5.1	4.7	4.2	3.9	3.7	3.4
Health Services (86)	5.9	6.4	6.0	6.1	6.2	6.0	5.9	6.1	6.3	6.6
Accommodation & Food Serv. (91-96)	2.3	2.4	2.7	2.4	2.2	1.9	1.8	1.8	1.8	1.8
Amusement & Recreational Service	0.8	1.0	1.2	1.0	1.2	1.2	1.1	1.1	1.1	1.1
Personal & Household Service (97)	1.6	1.3	1.3	1.7	1.4	1.3	1.2	1.2	1.1	1.1
Other Service (98-99)	0.9	1.0	1.5	1.3	1.4	1.3	1.3	1.2	1.2	1.1
Public Administration (81-84)	6.4	6.5	6.8	6.2	5.8	5.4	4.9	4.6	4.4	4.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1.5 ENERGY

	ACTUAL					FORECAST					
	1991	1992	1993	1994	1995	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2025
	<----------dollars---------->					<----------annual percentage change---------->					
WORLD OIL PRICES											
$ per Barrel											
International Oil Price											
FOB Cost US Imports											
Annual Average Price											
Current US Dollars	16.97	18.15	18.90	19.80	20.70	5.1	6.6	5.0	5.6	5.0	4.3
Constant US 1991 Dollars	16.97	17.60	17.70	17.90	18.15	1.7	3.0	1.4	1.7	1.0	0.3
West Texas Intermediate											
at Chicago											
Current US Dollars	22.05	21.25	22.00	23.00	24.00	2.1	6.2	4.8	5.3	4.8	4.3
Constant US 1991 Dollars	22.05	20.60	20.60	20.80	20.98	-1.2	2.6	1.3	1.4	0.7	0.3
CANADIAN CRUDE OIL											
AND NATURAL GAS PRICES											
Canadian $ per Barrel:											
Ontario Refiners' Acquisition											
Cost (Light Crude)											
Annual Average Price											
Current Dollars	23.23	23.25	24.30	25.30	26.30	3.1	6.4	4.8	5.3	4.7	4.5
Constant 1991 Dollars	23.23	23.00	23.40	23.70	23.90	0.7	2.8	1.3	1.3	0.7	0.0
Natural Gas:											
Canadian $ per Million Btu:											
Average Toronto Citygate											
Annual Average Price											
Current Dollar	2.54	2.52	2.44	2.60	2.79	2.4	7.0	4.8	8.3	5.6	4.5
Constant 1991 Dollars	2.54	2.49	2.35	2.43	2.54	0.0	3.4	1.3	4.2	1.5	0.0

Table A.1 Historical and Forecast Data - Rates and Percent Changes

Year	Real GDP Growth (1) U.S.	Canada	Ontario	Consumer Price Index U.S.	Canada	Ontario	Population Ontario	Labour Force (1) Ontario	Employ't(1) Ontario	Unemploy't Rate (2) Ontario	Labour Productivity (1) Ontario
1964	5.6	6.7	7.3	1.3	1.8	N/A	2.3	3.3	3.9	3.3	3.3
1965	5.6	6.6	6.3	1.6	2.5	N/A	2.4	2.3	3.0	2.6	3.2
1966	6.0	6.8	7.0	3.0	3.7	N/A	2.5	6.2	6.1	2.6	0.8
1967	2.6	2.9	4.2	2.8	3.6	N/A	2.4	3.8	3.1	3.2	1.0
1968	4.1	5.4	6.6	4.3	4.1	N/A	1.9	3.1	2.6	3.6	3.8
1969	2.7	5.4	5.8	5.5	4.5	N/A	1.7	3.3	3.7	3.2	2.0
1970	-0.0	2.6	2.2	5.8	3.3	N/A	2.2	3.2	1.9	4.4	0.3
1971	2.9	5.8	5.9	4.3	2.8	N/A	2.0	3.6	2.5	5.4	3.3
1972	5.0	5.7	6.3	3.3	4.8	N/A	1.4	3.6	4.0	5.0	2.1
1973	5.2	7.7	4.8	6.1	7.6	N/A	1.3	3.6	4.4	4.3	0.4
1974	-0.6	4.4	3.1	11.1	10.9	N/A	1.7	4.4	4.2	4.4	-1.0
1975	-0.8	2.6	0.6	9.2	10.7	N/A	1.5	3.6	1.5	6.3	-0.9
1976	4.9	6.2	6.7	5.8	7.5	N/A	1.2	1.7	1.9	6.2	4.8
1977	4.5	3.6	3.5	6.5	8.0	N/A	1.1	2.7	1.8	7.0	1.7
1978	4.8	4.6	3.8	7.6	8.9	N/A	1.0	3.7	3.4	7.2	0.4
1979	2.5	3.9	2.5	11.3	9.1	N/A	0.7	3.3	4.1	6.5	-1.6
1980	-0.5	1.5	-0.3	13.5	10.2	10.3	0.8	1.8	1.5	6.8	-1.8
1981	1.8	3.7	4.0	10.3	12.4	12.0	0.7	2.6	2.9	6.5	1.0
1982	-2.2	-3.2	-3.9	6.2	10.8	10.7	0.9	0.9	-2.6	9.8	-1.3
1983	3.9	3.2	4.3	3.2	5.8	6.2	1.1	1.3	0.6	10.3	3.7
1984	6.2	6.3	9.0	4.3	4.3	4.9	1.2	2.1	3.6	9.0	5.2
1985	3.2	4.8	4.4	3.6	3.9	4.1	1.2	2.2	3.4	8.0	1.1
1986	2.9	3.3	6.2	2.0	4.2	4.4	1.2	2.2	3.4	7.0	2.7
1987	3.1	4.2	4.5	3.6	4.4	5.1	1.6	2.7	3.6	6.1	0.8
1988	3.9	4.7	7.0	4.0	4.0	4.7	1.8	2.5	3.7	5.0	3.2
1989	2.5	2.5	2.1	4.8	5.0	5.8	1.7	1.9	1.8	5.1	0.3
1990	0.8	-0.3	-3.1	5.4	4.8	4.8	1.7	1.0	-0.2	6.3	-2.8
1991	-1.2	-1.7	-2.9	4.2	5.6	4.6	1.7	0.1	-3.4	9.6	0.5
1992	1.8	1.3	1.8	3.2	1.7	1.2	1.8	0.2	-1.1	10.7	2.9
1993	2.7	3.5	4.0	3.5	2.6	2.6	1.6	1.7	2.1	10.4	1.9
1994	3.0	4.0	4.6	3.5	2.8	2.8	1.6	1.9	2.7	9.7	1.9
1995	2.4	4.5	5.0	3.5	3.2	3.2	1.6	1.8	3.0	8.6	1.9
1996	2.4	3.6	3.8	3.5	3.5	3.5	1.5	1.8	2.7	7.8	1.1
1996-2000	2.4	3.4	3.4	3.5	3.5	3.5	1.4	1.9	2.1	7.8	1.3
2001-2005	2.2	3.0	3.0	3.5	3.5	3.5	1.2	1.6	1.7	7.4	1.3
2006-2010	2.1	2.7	2.7	4.0	4.0	4.0	1.0	1.4	1.4	7.3	1.3
2011-2015	2.0	2.4	2.5	4.0	4.0	4.0	1.0	1.1	1.1	7.2	1.4

1. Average Annual Percent Change
2. Percent

Table A.1 (Cont'd) Historical and Forecast Data - Rates and Percent Changes

Year	Average Hourly Earnings(1) Manufacturing Canada	Manufacturing Ontario	Construction Ontario	90 Day T-Bill Rate	Prime Rate Canada(2)	Treasury Bill Rate U.S.(2)	Gov't of Canada Bonds 5 Year(2)	Gov't of Canada Bonds 30 Year(2)	Canadian Dollar (3) (US cents)
1964	3.6	4.0	4.0	3.7	5.8	3.5	4.7	5.2	92.7
1965	4.8	5.3	9.6	4.0	5.8	3.9	4.9	5.2	92.8
1966	6.1	5.1	9.6	5.0	6.0	4.9	5.5	5.7	92.8
1967	7.0	6.6	8.8	4.6	5.9	4.3	5.6	5.9	92.7
1968	7.4	7.4	8.1	6.3	6.9	5.3	6.7	6.7	92.8
1969	8.2	8.4	11.9	7.2	8.0	6.7	7.7	7.6	92.9
1970	8.0	8.5	16.1	6.0	8.2	6.4	7.1	7.9	95.8
1971	8.9	8.8	12.0	3.6	6.5	4.3	5.6	6.9	99.0
1972	7.8	7.8	9.6	3.6	6.0	4.1	6.3	7.2	100.9
1973	8.9	8.9	9.6	5.5	7.6	7.0	7.0	7.6	100.0
1974	13.4	11.5	10.9	7.8	10.8	7.8	8.1	8.9	102.3
1975	15.7	14.4	11.6	7.4	9.4	5.8	7.7	9.0	98.3
1976	13.8	13.2	14.2	8.9	10.0	5.0	8.4	9.2	101.4
1977	10.8	10.2	12.1	7.3	8.5	5.3	7.9	8.7	94.1
1978	7.2	6.7	5.5	8.7	9.7	7.2	9.0	9.3	87.7
1979	8.8	8.3	6.6	11.7	12.9	10.1	10.4	10.2	85.4
1980	10.1	9.3	9.6	12.8	14.3	11.4	12.4	12.5	85.5
1981	12.0	11.7	11.0	17.7	19.3	14.0	15.7	15.2	83.4
1982	11.7	11.4	8.3	13.7	15.8	10.6	14.0	14.3	81.1
1983	7.0	7.2	6.5	9.3	11.2	8.6	10.6	11.8	81.1
1984	5.9	6.3	1.5	11.1	12.1	9.5	11.9	12.8	77.2
1985	3.9	4.0	3.3	9.4	10.6	7.5	10.4	11.0	73.2
1986	3.1	4.3	3.5	9.0	10.5	6.0	9.2	9.5	72.0
1987	3.5	3.7	6.9	8.1	9.5	5.8	9.4	10.0	75.4
1988	4.9	5.4	3.7	9.5	10.8	6.7	9.8	10.2	81.3
1989	5.5	4.9	6.4	12.1	13.3	8.1	10.2	9.9	84.5
1990	5.5	5.6	7.0	12.7	13.9	7.3	11.0	10.7	85.9
1991	5.6	5.9	4.8	8.6	9.6	5.1	9.0	9.7	87.3
1992	3.3	4.3	0.5	6.4	7.6	3.4	7.4	8.6	83.1
1993	2.7	2.4	2.4	4.9	6.0	4.3	7.3	8.2	80.8
1994	2.8	2.6	3.0	6.6	7.7	6.0	7.9	8.3	81.7
1995	3.0	3.5	3.5	8.0	9.1	6.5	8.2	8.5	82.8
1996	3.8	4.0	4.0	8.0	9.1	6.5	8.2	8.5	83.5
1996-2000	4.8	4.8	4.8	7.3	8.4	5.4	7.9	8.3	83.5
2001-2005	4.8	4.8	4.8	6.3	7.4	4.8	7.6	7.9	83.5
2006-2010	5.3	5.3	5.3	6.5	7.6	5.3	8.0	8.3	83.5
2011-2015	5.4	5.4	5.4	6.8	7.9	5.5	7.7	8.0	83.5

1. Average Annual Percent Change
2. Percent
3. Average Annual

Table A.2 Historical and Forecast Data - Levels and Indexes

	Real GDP			Consumer Price Index			Average Hourly Earnings (7)			Ontario Demographic Variables (5)			
Year	U.S.(1)	Canada(2)	Ontario(2)	U.S.(3)	Canada(4)	Ontario (4)	Manufacturing Canada	Manufacturing Ontario	Construction Ontario	Population	Labour Force	Employment	Labour Productivity(6)
1964	2,343	203,382	82,221	31.0	25.1	N/A	1.92	2.06	2.08	6,627	2,567	2,483	33,114
1965	2,473	216,802	87,396	31.5	25.7	N/A	2.01	2.17	2.28	6,783	2,625	2,558	34,166
1966	2,622	231,519	93,475	32.5	26.6	N/A	2.14	2.28	2.50	6,954	2,787	2,714	34,442
1967	2,690	238,306	97,385	33.4	27.6	N/A	2.29	2.43	2.72	7,122	2,891	2,799	34,793
1968	2,801	251,064	103,789	34.8	28.7	N/A	2.45	2.61	2.94	7,258	2,980	2,873	36,126
1969	2,877	264,508	109,818	36.7	30.0	N/A	2.65	2.83	3.29	7,385	3,077	2,979	36,864
1970	2,876	271,372	112,252	38.8	31.0	N/A	2.87	3.07	3.82	7,549	3,177	3,037	36,961
1971	2,959	286,998	118,830	40.5	31.9	N/A	3.12	3.34	4.28	7,699	3,290	3,113	38,172
1972	3,107	303,447	126,272	41.8	33.4	N/A	3.37	3.60	4.69	7,806	3,410	3,239	38,985
1973	3,269	326,848	132,279	44.4	35.9	N/A	3.67	3.92	5.14	7,911	3,532	3,380	39,136
1974	3,248	341,235	136,440	49.3	39.9	N/A	4.16	4.37	5.70	8,048	3,686	3,523	38,728
1975	3,222	350,113	137,227	53.8	44.2	N/A	4.81	5.00	6.36	8,167	3,818	3,576	38,374
1976	3,381	371,688	146,481	56.9	47.5	N/A	5.47	5.66	7.26	8,262	3,882	3,643	40,209
1977	3,533	385,122	151,654	60.6	51.3	N/A	6.07	6.24	8.14	8,350	3,986	3,708	40,899
1978	3,704	402,737	157,443	65.2	55.9	N/A	6.50	6.66	8.59	8,435	4,133	3,835	41,054
1979	3,797	418,328	161,308	72.6	61.0	60.4	7.07	7.21	9.16	8,498	4,271	3,993	40,398
1980	3,776	424,537	160,777	82.4	67.2	66.6	7.79	7.88	10.04	8,564	4,350	4,053	39,669
1981	3,843	440,127	167,162	90.9	75.5	74.6	8.72	8.80	11.14	8,621	4,463	4,171	40,077
1982	3,760	425,970	160,702	96.5	83.7	82.6	9.75	9.80	12.07	8,699	4,502	4,063	39,553
1983	3,907	439,448	167,691	99.6	88.5	87.7	10.43	10.51	12.86	8,795	4,561	4,089	41,010
1984	4,149	467,167	182,755	103.9	92.4	92.0	11.04	11.17	13.05	8,901	4,655	4,235	43,153
1985	4,280	489,437	190,882	107.6	96.0	95.8	11.47	11.61	13.48	9,007	4,758	4,377	43,610
1986	4,404	505,666	202,710	109.7	100.0	100.0	11.83	12.11	13.95	9,115	4,862	4,524	44,808
1987	4,540	526,730	211,800	113.7	104.4	105.1	12.24	12.55	14.92	9,264	4,992	4,689	45,170
1988	4,719	551,423	226,667	118.3	108.6	110.0	12.84	13.23	15.47	9,428	5,118	4,862	46,620
1989	4,838	564,990	231,448	124.0	114.0	116.4	13.55	13.88	16.46	9,585	5,214	4,949	46,767
1990	4,877	563,060	224,313	130.7	119.5	122.0	14.30	14.66	17.62	9,745	5,268	4,937	45,434
1991	4,821	553,457	217,715	136.2	126.2	127.6	15.10	15.53	18.47	9,907	5,275	4,769	45,652
1992	4,908	560,652	221,634	140.6	128.3	129.1	15.60	16.19	18.57	10,086	5,286	4,718	46,979
1993	5,040	580,275	230,499	145.5	131.7	132.5	16.02	16.58	19.01	10,248	5,375	4,817	47,853
1994	5,192	603,486	241,102	150.6	135.4	136.2	16.47	17.01	19.58	10,414	5,478	4,947	48,738
1995	5,316	630,643	253,157	155.9	139.7	140.6	16.96	17.61	20.27	10,579	5,575	5,095	49,685
1996	5,444	653,346	262,777	161.3	144.6	145.5	17.61	18.31	21.08	10,737	5,674	5,233	50,213
2000	5,985	746,837	299,801	185.1	165.9	166.9	21.44	22.26	25.62	11,330	6,135	5,567	53,001
2005	6,673	865,789	347,551	219.9	197.1	198.3	27.11	28.14	32.39	12,011	6,641	6,152	56,493
2010	7,404	989,154	397,053	267.5	239.8	241.2	35.09	36.43	41.93	12,626	7,124	6,603	60,134
2015	8,175	1,113,689	449,474	325.5	291.7	293.5	45.65	47.39	54.55	13,270	7,535	6,989	64,307

1. Billions of 1987 Dollars
2. Millions of 1986 Dollars
3. 1982 to 1984 = 100
4. 1986 = 100
5. Thousands
6. 1986 Dollars
7. Dollars